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United States Patent [19]**Brodell et al.**[11] **Patent Number:** **5,524,847**[45] **Date of Patent:** **Jun. 11, 1996**[54] **NACELLE AND MOUNTING
ARRANGEMENT FOR AN AIRCRAFT
ENGINE**[75] Inventors: **Robert F. Brodell**, Marlborough;
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Hartford, Conn.[21] Appl. No.: **117,464**[22] Filed: **Sep. 7, 1993**[51] Int. Cl.⁶ **F02C 7/20**; B64D 27/18;
B64D 27/26[52] U.S. Cl. **244/54**; 60/39.31; 248/554[58] Field of Search 244/54, 53 R;
60/39.31; 248/554, 555[56] **References Cited****U.S. PATENT DOCUMENTS**

3,948,469	4/1976	Brown	244/54
4,013,246	3/1977	Nightingale	244/54
4,044,973	8/1977	Moorehead	244/54
4,055,041	10/1977	Adamson et al.	244/54 X
4,266,741	5/1981	Murphy	244/54
4,326,682	4/1982	Nightingale	244/54
4,458,863	7/1984	Smith	244/54
4,634,081	1/1987	Chee	244/54

4,658,579	4/1987	Bower et al.	60/39.31 X
4,815,680	3/1989	Goldhammer	
4,825,648	5/1989	Adamson	60/39.31 X
5,174,525	12/1992	Schilling	248/554 X
5,205,513	4/1993	Schilling	248/554 X
5,277,382	1/1994	Seelen et al.	248/555 X
5,319,922	6/1994	Brantley	60/39.31

FOREIGN PATENT DOCUMENTS

2290350	6/1976	France
2046193	11/1990	United Kingdom

OTHER PUBLICATIONSPCT/GB92/00994, Newton, Gas Turbine Engine Nacelle
Assembly, International Publication No. WO 92/02920,
International Publication Date 18 Feb. 1993.*Primary Examiner*—William Grant*Attorney, Agent, or Firm*—Kenneth C. Baran[57] **ABSTRACT**

A nacelle and mounting arrangement for a high bypass ratio ducted fan aircraft engine mounted external to the aircraft main structure is disclosed. The nacelle and mounting arrangement isolate the engine from the adverse effects of certain aerodynamic forces acting on the nacelle by transferring substantially all of those forces directly from the nacelle to the aircraft and transferring substantially none of those forces to the engine. Various arrangements of the nacelle components which facilitate engine removal while avoiding the placement of nacelle component interfaces in highly stressed regions of the nacelle are also disclosed.

10 Claims, 5 Drawing Sheets